

REMARKS/ARGUMENTS

Favorable reconsideration of the present application is respectfully requested.

Claim 35 has been cancelled.

Claims 9, 24, 29 and 32 have been amended to further recite that the open container that has been separated from the cover unified with the door is positioned such that the air flowing out from the high cleanliness room to the low cleanliness room will flow into the open container. Basis for this is evident from Figs. 2, 3A and 3B.

Claims 9, 11-15, 24-28, 32 and 33 were newly rejected under 35 U.S.C. § 103 as being obvious over Muka et al in view of Briner et al, both of record, and further in view of U.S. patent 6,074,154 (Ueda et al). Additionally, Claims 29-31 were rejected under 35 U.S.C. § 103 as being obvious over Muka et al in view of Briner et al and Ueda et al, and further in view of Toshima et al, which was cited to teach a loader located in a low cleanliness room. These rejections are respectfully traversed.

In Muka et al, the wafer carrier 32 is positioned in proximity to a high cleanliness load lock 22 in preparation for transfer of wafers. The carrier door 42 is then removed with the wafer carrier 32 at a location that is horizontally spaced from the port 78 of the load lock 22. This is evidently done to provide a space for the mechanism 110-110 that grips the carrier door 42 to retract it horizontally before the load lock door 80 and carrier door 42 are together lowered by the actuator 122. In order to prevent dust in the low cleanliness room from reaching the wafers in the open carrier 32, Muka et al provides the mini-environment 48 over the port 78 of the load lock and against which the carrier 32 forms a seal (col. 5, lines 51-64).

Muka et al does not retract the carrier 32 to provide the horizontal separation for opening the carrier, but this was known in the art. For example, in Ueda et al the door (cassette cover) 44 of the cassette CR is gripped by the shutter board (cover) of the transfer

chamber 31, after which the cassette CR is retracted to provide horizontal separation prior to lowering of the doors (col. 10, lines 60-65).

However, Ueda et al fails to appreciate or account for the fact that the retraction of the cassette CR away from the high cleanliness transfer chamber 31 (Fig. 8E) leaves the open cassette exposed to the low cleanliness atmosphere, whereby dust laden low cleanliness external air can enter the retracted open cassette CR.

According to the invention, as in Ueda, et al, the movable stage carrying the wafer container or cassette is retracted away from the wall that separates the low cleanliness room from the high cleanliness room, to separate the container from the container cover unified with the door covering the opening portion in the wall that separates the low cleanliness room from the high cleanliness room. However, unlike in Ueda et al, a measure is taken to prevent dust laden low cleanliness external air from entering the retracted open container. In particular, a gap is provided around the door covering the opening portion in the wall that separates the low cleanliness room from the high cleanliness room, through which air flows out from the high cleanliness room to the low cleanliness room (p. 10, lines 1-5), and the open container that has been separated from the cover unified with the door is positioned such that the air flowing out from the high cleanliness room to the low cleanliness room will flow into the open container. This clean air flow will prevent the dust contamination of wafers in the open container that may otherwise occur.

Applicants recognize that it has been known in the art to provide a gap for clean air at positive pressure to flow for preventing contamination of wafers being transferred. For example, Briner et al teaches providing a gap between an isolator 18 holding wafers and a bulkhead 22 in a wall 24 of a controlled environment “thereby ruling out contamination of articles during transfer” of the article between the isolator and the controlled environment (col. 5, lines 14-19).

However, this known technique in the art is to prevent contamination of the articles *during their transfer*, not to prevent the contamination of the articles in a carrier or container that has become open due to its retraction from the wall of the clean room. Therefore, while Briner et al might broadly teach an air gap for clean air at positive pressure to flow for preventing contamination, *per se*, it would not teach the claimed positioning of the retracted container such that the air flowing through the gap from the high cleanliness room to the low cleanliness room will flow into the open container.

It is respectfully submitted that the claimed invention would not have been obvious from the combination of the cited prior art because it provides an unexpectedly improved result. Briner et al only teaches the expectation that an air gap around a carrier will prevent contamination of wafers during their transfer from the carrier. The interaction of the air gap with the claimed positioning of the retracted container to prevent dust laden low cleanliness external air from entering the retracted open container therefore represents an unexpected synergy which is evidence of unobviousness. MPEP 716.02(a)(I).

The examiner's attention is also respectfully directed to the recently issued "Examination Guidelines Update: Developments in the Obviousness Inquiry After *KSR v. Teleflex*," FEDERAL REGISTER, Vol. 75, No. 169, effective September 1, 2010. As noted at Example 4.1 of these guidelines: "Even where a general method that could have been applied to make the claimed product was known and within the level of skill of the ordinary artisan, the claim may nevertheless be nonobvious if the problem which had suggested use of the method had been previously unknown." As this guideline further notes: "[s]ince the problem had not been previously known, there would have been no reason to incur additional time and expense to add another layer, even though the addition would have been technologically possible." It is respectfully submitted that, under this guideline, it would not have been obvious in view of Briner et al to have positioned a retracted wafer carrier 32 of

Muka et al (as modified by Ueda et al), relative to a gap for the flow of clean air from the load lock 22, such that the air from the load lock 22 will flow into the open carrier, since the problem of contamination of wafers in the retracted open carrier was not known in the art.

Applicants therefore believe that the present application is in a condition for allowance and respectfully solicit an early notice of allowability.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, L.L.P.



Bradley D. Lytle
Registration No. 40,073
Robert T. Pous
Registration No. 29,099
Attorneys of Record

Customer Number

22850

Tel: (703) 413-3000
Fax: (703) 413 -2220
(OSMMN 08/09)